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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,416	10/16/2003	Curtis R. McAllister	10002825-2	7865

7590 05/18/2004

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P. O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

PHAN, RAYMOND NGAN

ART UNIT	PAPER NUMBER
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2111

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/685,416

Applicant(s)

MCALLISTER, CURTIS R.

Examiner

Raymond Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6 and 7 is/are rejected.
- 7) ☒ Claim(s) 3-5 and 8-10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Part III DETAILED ACTION

Notice to Applicant(s)

1. This action is responsive to the following communications: continuation filed on October 16, 2003.
2. This application has been examined. Claims 1-10 are pending.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321© may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1 and 6 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 4

respectively in Patent No. 6,651,124. Although the conflicting claims are not identical, they are not patentably distinct from each other because the omissions of, reserving one or more queue slots for exclusive processing of processor return flow control class transactions and a coherency controller configured to reserve one or more queue slots for exclusive processing of processor return flow control class transactions, in claims 1 and 4 respectively are obvious expedients since elements of claims 1 and 6 the present application still perform the same functions,

a method and an apparatus for preventing a deadlock in a distributed shared memory system comprising a memory access request transaction queue including a plurality of queue slots.

as claims 1 and 4 of the patent. In re Karlson, 136 USPQ 189 (ccPA 1963).

5. The remaining claims, not specifically mentioned, are rejected for the same reason as set for claims 1 and 6.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-2, 6-7, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hagersten et al. (US No. 5,983,326) in view of Eberhard et al. (US No. 6,442,655).

In regard to claims 1, 6, Hagersten et al. disclose the system and method of preventing a deadlock in a distributed shared memory system having a memory

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access request transaction queue having a plurality of queue slots (see col. 4, line 64 through col. 5, line 5). But Hagersten et al. do not specifically disclose the step of preventing a blocking flow control class transaction from being processed in at least one of the plurality of queue slots. However Eberhard et al. disclose the step of rejecting transactions (i.e. request) from being processed in at least one of the plurality of queue slots (see col. 2, lines 20-46). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of Eberhard et al. into the teachings of Hagersten et al. because it would provide an improved coherency control mechanism which avoids deadlock conditions.

In regard to claims 2, 7, Hagersten et al. further disclose allowing a processor return flow control class transaction to be processed in at least one of the plurality of queue slots (see col. 5, line 53 through col. 6, line 4).

Allowable Subject Matter

8. Claims 3-5, 8-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is an Examiner's statement of reasons for the indication of allowable subject matter: Claims 3 and 8 are allowable over the prior art of record because the Examiner found neither prior art cited in its entirety, nor based on the prior art, found any motivation to combine any of the said prior arts which teach the step of providing a blocking flow control class transaction threshold indicating a maximum number of blocking flow control class transactions allowed to be processed in the memory access request transaction queue, and preventing the

memory access request transaction queue from accepting any new blocking flow control class transaction if a current number of blocking flow control class transaction already in the memory access requesting transaction queue is not less than the blocking flow control class transaction threshold.

10. The remaining claims, not specifically mentioned, are allowed for the same reason as set for claims 3 and 8.

Conclusion

11. Claims 1-2, 6-7 are rejected. Claims 3-5 and 8-10 are objected.

12. The prior arts made of record and not relied upon are considered pertinent to applicant's disclosure.

Hagan et al. (US No. 5,966,547) disclose a system for fast posting to shared queues in multi-processor environments utilizing interrupt state checking.

Ziegler et al. (US No. 6,304,932) disclose a queue-based predictive flow control mechanism with indirect determination of queue fullness.

Binford et al. (US No. 5,875,343) disclose a employing request queues and completion queues between main processors and I/O processors wherein a main processor is interrupted when a certain number of completion messages are present in its completion queue.

Adkisson (US No. 6,385,676) discloses a coherent ordering queue for computer system.

Jayakumar et al. (US No. 5,951,663) disclose a method and apparatus for tracking bus transactions.

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Collins et al. (US No. 6,209,067) disclose a computer system controller and method with processor write posting hold off on PCI master memory request.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Raymond Phan, whose telephone number is (703) 306-2756. The examiner can normally be reached on Monday-Friday from 6:30AM- 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Primary, Paul Myers can be reached on (703) 305-9656 or via e-mail addressed to paul.myers@uspto.gov. The fax phone number for this Group is (703) 746-7239.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [raymond.phan@uspto.gov].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

A handwritten signature in black ink, appearing to read 'Ray', with a long horizontal flourish extending to the right.

Raymond Phan
5/14/04